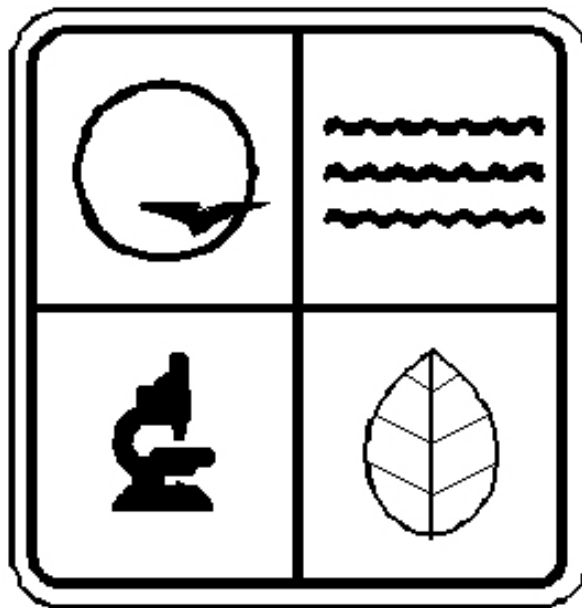# River Valley Baseline

EDM Calibration Baseline
St. Louis County, Missouri

Established by
Land Survey Program
Missouri Department of Natural
Resources
And
St. Louis County Highways & Traffic

2002

River Valley EDM Baseline

To reach the River Valley EDM Baseline from the intersection of Missouri Highway 141 (Woods Mill Road) and Missouri Highway 340 (Olive Street Road) go easterly on Highway 340 for 0.6 mile to the intersection with Creve Coeur Mill Road. Turn left and go northerly along Creve Coeur Mill Road for 2.2 miles to the intersection with River Valley Drive. Turn left on River Valley Drive and go westerly for 1.1 miles to a right angle turn to the left. Continue southerly on River Valley Drive another 0.7 mile to a paved field entrance on the east (left) side and the 0M monument for the baseline.

To reach the River Valley EDM Baseline from the intersection of I-270 and Dorsett Road, go westerly along Dorsett Road for about 1.6 miles to the intersection with Marine Avenue, go northerly on Marine Avenue for 1.5 miles to the intersection with Creve Coeur Mill Road. Go westerly and southerly on Creve Coeur Mill Road for 1.4 miles to the intersection with River Valley Drive. Turn left on River Valley Drive and go westerly for 1.1 miles to a right angle turn to the left. Continue southerly on River Valley Drive another 0.7 mile to a paved field entrance on the east (left) side and the 0M monument for the baseline.

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?
 Upon receipt of a new instrument
 Immediately after each servicing
 Anytime the operator feels the instrument is not working properly
 Before and after DNR or other government agency contracts

BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING
 Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
 Check thermometers and barometers/altimeters
 Make sure all tripods are rigid and stable
 Clean prisms
 Fully charge all batteries
 Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.

IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.

EDM CALIBRATION REPORT – RIVER VALLEY EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m

0m   150m   400m   1100m
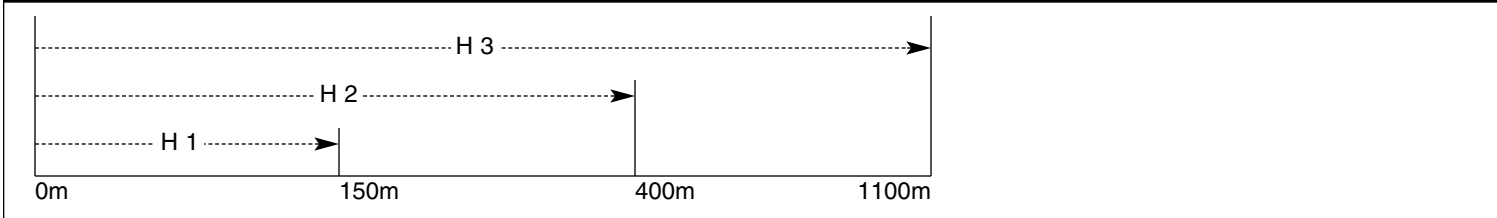
H 1 =	H 2 =	H 3 =	TEMP
H 1 = (150.0396m)	H 2 = (400.1049m)	H 3 = (1100.0273m)	*PRESS

E.D.M. AT 150m

0m   150m   400m   1100m
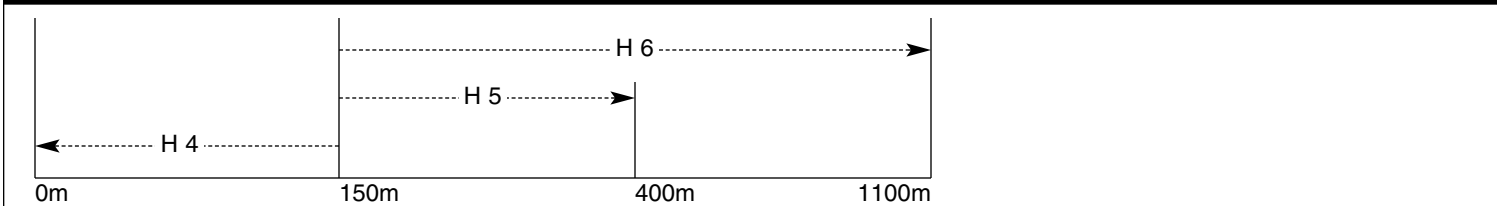
H 4 =	H 5 =	H 6 =	TEMP
H 4 = (150.0396m)	H 5 = (250.0653m)	H 6 = (949.9877m)	*PRESS

E.D.M. AT 400m

0m   150m   400m   1100m
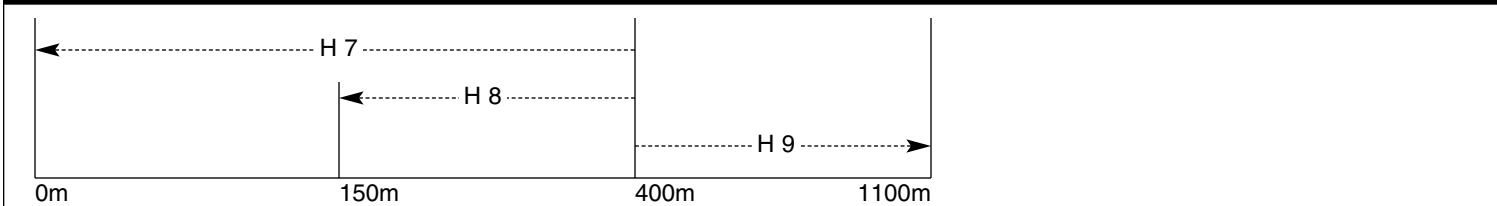
H 7 =	H 8 =	H 9 =	TEMP
H 7 = (400.1049m)	H 8 = (250.0653m)	H 9 = (699.9224m)	*PRESS

E.D.M. AT 1100m

0m   150m   400m   1100m
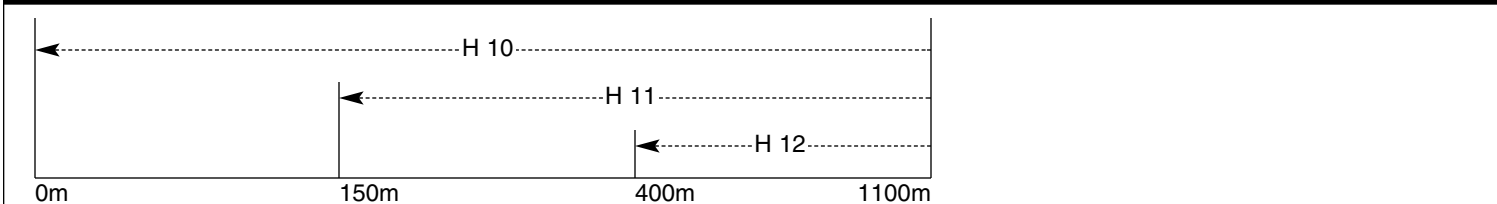
H 10 =	H 11 =	H 12 =	TEMP
H 10 = (1100.0273m)	H 11 = (949.9877m)	H 12 = (699.9224m)	*PRESS

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION
EDM CALIBRATION REPORT – RIVER VALLEY EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

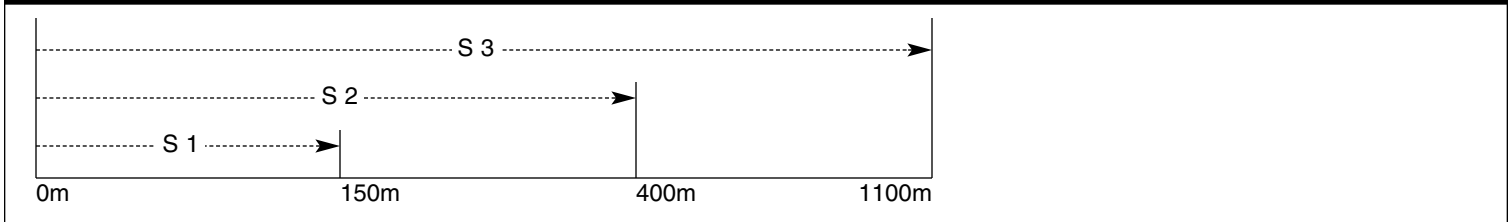NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 0m

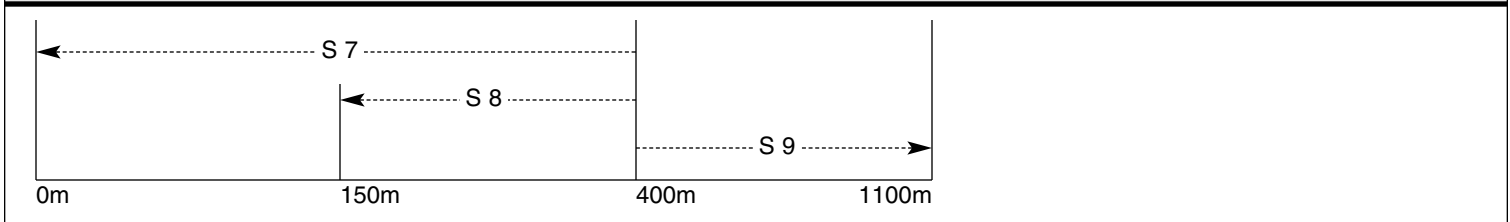0m   150m   400m   1100m

HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

E.D.M. AT 150m
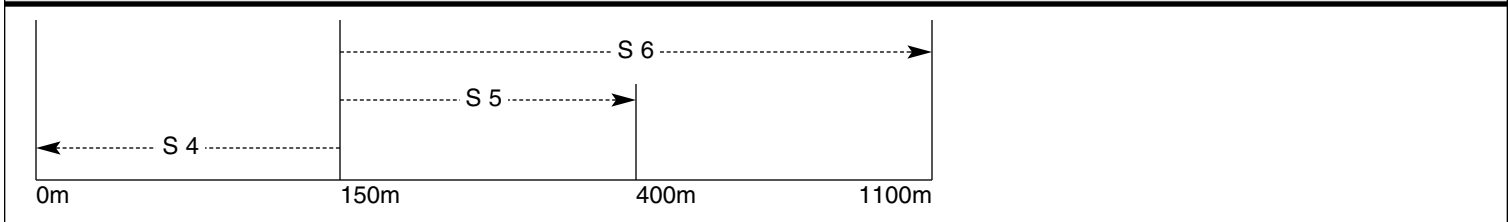
0m   150m   400m   1100m

S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 400m

0m   150m   400m   1100m

S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 1100m
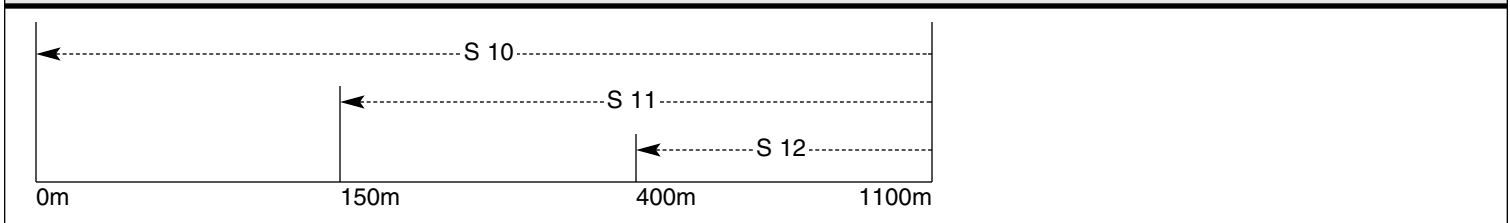
0m   150m   400m   1100m

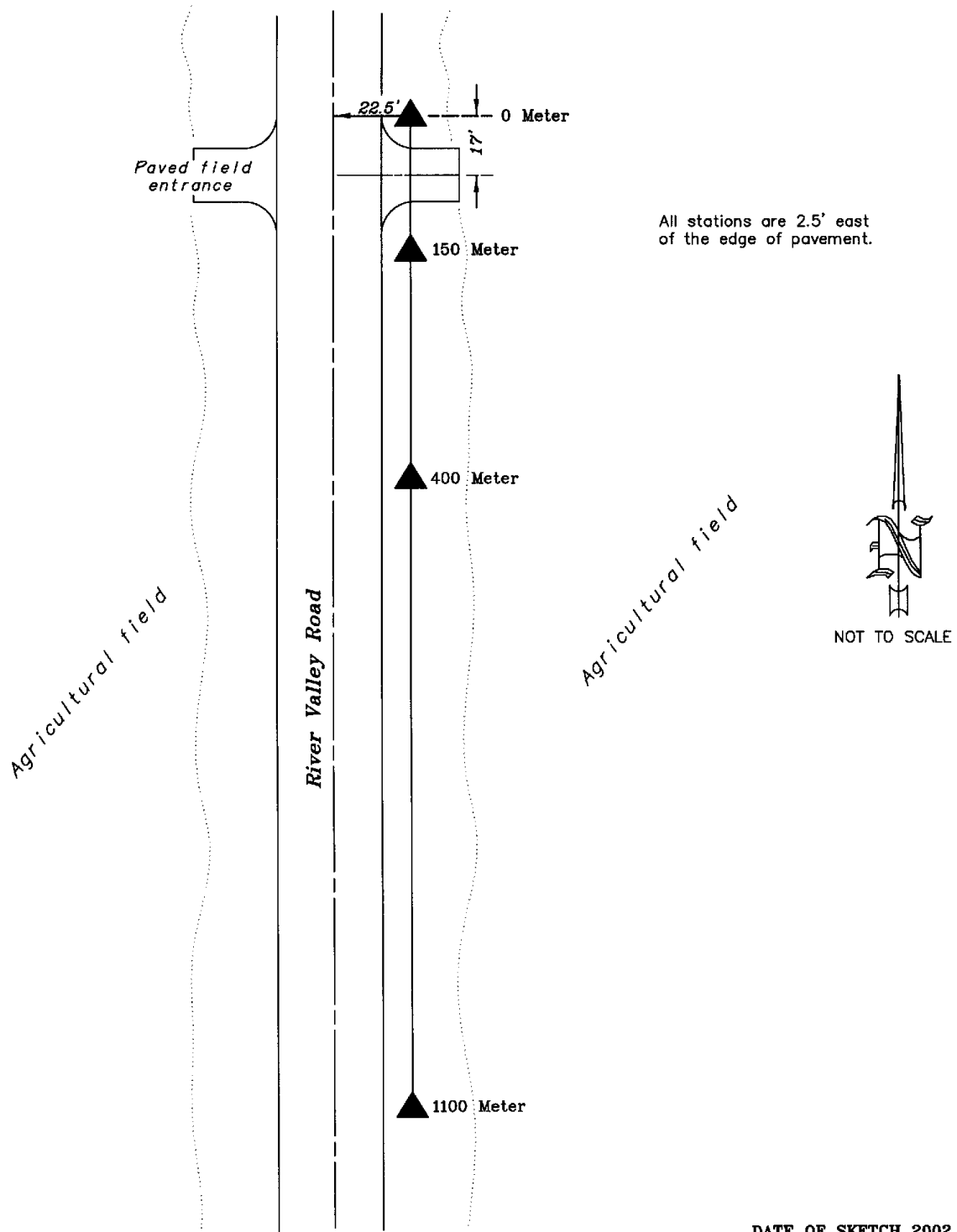| S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments.
0m = 137.45m   150m = 137.40m   400m = 137.47m   1100m = 137.90m
*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

MO 780-1862 (12-03)

River Valley Baseline

Paved field
entrance

22.5' — 0 Meter

17'

All stations are 2.5' east
of the edge of pavement.

150 Meter

400 Meter

Agricultural field

River Valley Road

Agricultural field

N

NOT TO SCALE

1100 Meter

DATE OF SKETCH 2002